

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A system for allocating frequency allocations (FAs) to each of N sectors in a base transceiver station (BTS) for use in a mobile communication system, N being a positive integer, the system comprising:

~~means for determining a determiner that determines~~ $d\#$ and $f\#$, each representing ~~a~~ the number of dynamic FAs and ~~a~~ the number of fixed FAs, respectively;

an array of sector amplifiers; and

~~means for switchably connecting a switch that switchably connects~~ the dynamic FAs to the sector amplifiers.

2. (Currently Amended) The system of claim 1, further comprising ~~[[;]]~~ an array of combiners that combine ~~for combining~~ the dynamic FAs and the fixed FAs and that output ~~outputting into~~ $d\#$ output signals.

3. (Original) The system of claim 2, wherein each of the sector amplifiers amplifies a corresponding output signal.

4. (Currently Amended) The system of claim 3, wherein each of the sector amplifiers includes:

a switchable divider ~~that for~~ switchably divides ~~dividing~~ the corresponding signal;

a plurality ~~number~~ of multi-carrier power amplifiers (MCPAs) that amplify ~~for amplifying~~ the divided signal; and

a switchable combiner ~~that for~~ switchably combines ~~combining~~ the amplified signal.

A1 5. (Currently Amended) The system of claim 4, wherein the sector amplifier further includes:

a first switch ~~that for~~ selectively connects ~~connecting~~ the corresponding signal to the MCPAs in the array of sector amplifiers; and

a second switch ~~that for~~ selectively connects ~~connecting~~ the amplified signal to the switchable combiners in the array of sector amplifiers.

6. (Currently Amended) The system of claim 5, further comprising~~[[:]]~~ an array of isolation resistors that prevent ~~for preventing~~ interference between signals input ~~inputted~~ into the sector amplifiers.

7. (Currently Amended) The system of claim 6, further comprising an array of phase shifters that match ~~for matching~~ the signals in phase.

8. (Currently Amended) The system of claim 4, wherein when if j FAs are allocated to a selected sector amplifier, the corresponding switchable divider and combiners operate in j-way, j being a positive integer.

A) 9. (Currently Amended) The system of claim 8, wherein ~~in case~~ when the j number of FAs are allocated ~~allocates~~ to the selected sector amplifier, each FA has the same power level at an output port of the selected sector amplifier.

10. (Currently Amended) A base station (BS) for allocating frequency allocations (FAs) to each of N sectors incorporated therein, wherein N is a positive integer, the base station (BS) comprising:

a controller that groups ~~for grouping~~ N sectors into M ~~small~~ groups and determines ~~determining~~ d and f for each ~~a small~~ group, M being positive integer, d and f representing the number of dynamic FAs and the number of fixed FAs, respectively;

d number of combiners that combine ~~for combining~~ the fixed FAs and the dynamic FAs for each said ~~each small~~ group and that output ~~outputting~~ d number of signals;

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d number of switchable power divider/combiners; and

d number of first switches that ~~for~~ selectively switch ~~switching~~ the output signals to the switchable power divider/combiners, whereby the switchable power divider/combiners amplify signals input ~~inputted~~ thereto at the same power level.

11. (Currently Amended) The base station of claim 10, wherein the controller calculates N, M, d and f by using a call request information corresponding to each sector.

AI 12. (Original) The base station of claim 11, wherein the call request information is retrieved from a mobile switching center.

13. (Currently Amended) The base station of claim 12, wherein the controller calculates N, M, d and f by using a ~~the~~ number of subscribers located in each sector of a target base station.

14. (Currently Amended) The base station of claim 13, wherein information regarding ~~for~~ the number of subscriber's ~~number~~ is retrieved from a mobile switching center.

15. (Currently Amended) The base station of claim 10, wherein the controller is located at the BS ~~BTC~~.

16. (Original) The base station of claim 10, wherein the controller is located at a call control processor (CCP).

A1 17. (Original) The base station of claim 10, wherein the fixed FAs are allocated to all of the combiners.

18. (Currently Amended) The base station of claim 10, wherein said switchable power divider/combiners include ~~divider/combiner includes~~:

d number of switchable power dividers, each dividing an input a signal ~~inputted thereto~~ into a number of divided signals, wherein each of the switchable power dividers is configured to control ~~capable of controlling~~ a the number of divided signals;

a number of multi-carrier power amplifiers (MCPAs) that amplify ~~for amplifying~~ the divided signals; and

d number of switchable power combiners, each combining a plurality ~~number~~ of input signals ~~inputted thereto~~ into an output signal, wherein each of the switchable power combiners is configured to control ~~capable of controlling~~ the number of input signals.

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19. (Currently Amended) The base station of claim 18, wherein when if j FAs are allocated to a predetermined sector, the corresponding switchable power dividers and combiners operates in j-way, j being a positive integer.

20. (Original) The base station of claim 18, wherein the number of MCPAs is the number of total FAs which is the sum of d and f.

AI 21. (Currently Amended) The base station of claim 18, the switchable power divider/combiners ~~divider/combiner~~ further include ~~includes~~:

d number of second switches that ~~for~~ selectively switch ~~switching~~ the divided signals from the switchable power dividers to the MCPAs; and

d number of third switches that ~~for~~ selectively switch ~~switching~~ signals amplified by the MCPAs to the switchable power combiners.

22. (Currently Amended) The base station of claim 18, wherein each of the switchable power dividers includes:

an input port that receives ~~for receiving~~ an input signal;

a common node;

k number of first ~~first~~ transmission lines, k being a positive integer;

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k number of second transmission lines;

k number of isolation elements disposed between the first and the second transmission lines, wherein each isolation element is electrically connected to a corresponding first and second transmission lines, respectively;

k number of output ports that output ~~for outputting~~ k number of output signals, each of the output ports is connected to a ~~portion~~ between a corresponding isolation element and one of a first and ~~or~~ a second transmission line;

k number of fourth switches that ~~for~~ selectively switch ~~switching~~ the input signal to the first transmission line ~~lines~~; and

k number of fifth switches that ~~for~~ selectively switch ~~switching~~ the common node to the second transmission line ~~lines~~ based on the first switches.

23. (Currently Amended) The base station of claim 22, wherein k is equal to $f/d+d$.

24. (Currently Amended) The base station of claim 23, wherein each of the combiners includes:

an output port that outputs ~~for outputting~~ an output signal;

a common node;

k number of first ~~first~~ transmission lines;

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k number of second transmission lines;

k number of isolation elements disposed between the first and the second transmission lines, wherein each isolation element is electrically connected to a corresponding first and second transmission lines, respectively;

k number of input ports that receive ~~for receiving~~ k number of input signals, each of the input ports is connected ~~to a portion~~ between a corresponding isolation element and one ~~of a first and or a second transmission line~~;

A1 k number of sixth switches that ~~for~~ selectively switch ~~switching~~ the input signal to the first transmission line ~~lines~~; and

k number of seventh switches that ~~for~~ selectively switch ~~switching~~ the common node to the second transmission line ~~lines~~ based on the first switches.

25. (Currently Amended) The base station of claim 24, wherein a power level of each FA becomes ~~to~~ the same value at each output port of the switchable combiners.

26. (Currently Amended) The base station of claim 21 ~~24~~, wherein each of the first and the third switches has d ~~the~~ number of output ports ~~to be equal to d~~.

27. (Currently Amended) The base station of claim 21 ~~26~~, wherein each of the second switches has d ~~the~~ number of input ports ~~to be equal to d~~.

28. (Currently Amended) The base station of claim 18, further comprising:
d number of antennas electrically connected to said MCPAs, wherein each of the antenna converts the amplified signals into radio frequency (RF) signals to be sent into each ~~the~~ sector in the ~~small~~ group, respectively.

AI 29. (Currently Amended) The base station of claim 23, further comprising:
k number of isolation resistors that prevent ~~for preventing~~ interference between signals input ~~inputted~~ to each ~~combiners~~ combiner.

30. (Currently Amended) The base station of claim 25, further comprising:
k number of phase shifters in front of ~~said each combiners~~ combiner that control for ~~controlling~~ phases of signals input ~~inputted~~ thereto.

31. (Currently Amended) The base station of claim 10, wherein N is equal to 6 so as to implement ~~apply~~ a BS BTS for use in an IMT 2000 communication system.

32. (Currently Amended) A method for allocating frequency allocation (FAs) to N sectors of a service area in a base transceiver station (BTS) for use in a wireless communication system, N being a positive integer, the method comprising ~~the steps of~~:

- a) grouping said N sectors into a plurality of ~~small~~ groups based on subscriber's information; and
- b) determining ~~a the~~ number of dynamic FAs and ~~a the~~ number of fixed FAs for each ~~small~~ group based on the subscriber's information.

AI 33. (Currently Amended) The method of claim 32, further comprising ~~the steps of~~:

- c) setting ~~a the~~ number of switches, ~~a the~~ number of switchable power divider/combiners and ~~a the~~ number of ports based on the number of dynamic FAs and the number of fixed FAs.

34. (Currently Amended) The method of claim 33, further comprising ~~the steps of~~:

- d) amplifying the dynamic FAs and the fixed FAs by using an array of sector amplifiers; and
- e) switchably connecting the dynamic FAs to the array of sector amplifiers.

35. (Currently Amended) The method of claim 34, wherein the said amplifying step ~~d)~~ includes the steps of includes:

d1) combining the dynamic FAs and the fixed FAs by using an array of fixed combiners;

d2) switchably dividing the combined FAs by using an array of switchable dividers;

d3) amplifying the combined signals by using a ~~multiple number~~ plurality of multi-carrier power amplifiers (MCPAs); and

A) d4) combining the amplified FAs into s# output signals to be sent to sectors in a corresponding ~~small~~ group, respectively, by using an array of switchable combiners, s# representing the number of total FAs per ~~small~~ group.

36. (Original) The method of claim 35, wherein the number of fixed combiners is equal to that of the dynamic FAs.

37. (Currently Amended) The method of claim 36, wherein a ~~the~~ number of input ports of each fixed combiner is defined as:

$$k = f\# / d\# + d\#$$

wherein k, f# and d# represent the number of input ports ~~port~~ per fixed combiner, the number of fixed FAs and the number of dynamic FAs, respectively.

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38. (Original) The method of claim 37, wherein the number of MCPAs is equal to $s\#$, which is the sum of $f\#$ and $d\#$.

39. (Original) The method of claim 38, wherein $f\# / d\#$ is greater than 1.

40. (Currently Amended) The method of claim 37, wherein each of the switchable power dividers and combiners operates in a ~~at~~ $d\#$ -way in a maximum operating mode.

A) 41. (Original) The method of claim 35, wherein j FAs are allocated to a predetermined sector, the corresponding switchable divider and combiner operate in j -way, j being a positive integer.

42. (Currently Amended) The method of claim 32, wherein the subscriber's information is a call request information corresponding to each sector.

43. (Original) The method of claim 42, wherein the call request information is retrieved from a mobile switching center.

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44. (Original) The method of claim 32, wherein the subscriber's information is the number of subscribers located in each sector of a target base station.

AI 45. (Currently Amended) The method of claim 44, wherein information regarding for the subscriber's number is retrieved from a mobile switching center.

46. (Currently Amended) The method of claim 32, wherein N is equal to 6 so as to apply implement a BTS for use in an IMT 2000 communication system.
